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10/523,063	08/16/2006	Wolfgang Berger	081539-000000US	7575

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TOWNSEND AND TOWNSEND AND CREW, LLP  
TWO EMBARCADERO CENTER  
EIGHTH FLOOR  
SAN FRANCISCO, CA 94111-3834

EXAMINER
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CALANDRA, ANTHONY J

ART UNIT	PAPER NUMBER
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1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,063	<b>Applicant(s)</b> BERGER ET AL.	
	<b>Examiner</b> ANTHONY J. CALANDRA	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/21/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1791

***Detailed Office Action***

1. The communication dated 2/01/2005 has been entered and fully considered.
2. Claims 1-14 are currently pending.

***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-6 and 10-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 12-14, 16, 18, 19, 31, and 32 of copending Application No. 10/596,360. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application is anticipated by claim 1 of the copending application. Claim 1 of the copending application states the additional detail that refiner surface is porous, however, this does not preclude anticipation.

Instant claim 2: see copending claim 12.

Art Unit: 1791

Instant claim 3: see copending claim 13.

Instant claim 4: see copending claim 14.

Instant claims 5 and 6: see copending claim 16.

Claim 10 of the instant application is not explicitly disclosed in the copending application, however, it would have been obvious at the time of the invention to optimize the relative speed of the pulp in relation to the moving member of the refiner.

Instant claim 11 and 12: see copending claims 31 and 32.

Instant claim 13: see copending claim 18.

Instant claim 14: see copending claim 19

5. Claim 1-4 and 8-14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 23, 26, 27, 29, 30, and 40 of copending Application No. 10/565,490. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application is anticipated by claim 1 of the copending application. Claim 1 of the copending application states the additional detail as to the operation of the refiner however, this does not preclude anticipation.

Instant claims 2 and 10 are not explicitly disclosed in the copending application, however, it would have been obvious at the time of the invention to optimize the relative speed of the pulp in relation to the moving member of the refiner.

Instant claim 3 and 4: see copending claims 23, 26, and 27.

Instant claims 8 and 9: see copending claims 23, and 26

Instant claims 11 and 12: see copending claim 40.

Instant claim 13: see copending claim 29 and 30.

Instant claim 14: see copending claim 27.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The term "very low shear force" in claim 1 is a relative term which renders the claim indefinite. The term "very low shear force" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear how 'low' the shear force has to be before the force can be considered 'very low' therefore the examiner cannot determine the proper metes and bounds of patent protection desired by the applicant.

Claims 2-14 are dependent on claim 1 and are similarly rejected.

9. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1791

In claim 8, applicant states that the 'cylindrical refining bodies center line is moved relative to the refining drum'. However, it appears from Figure 2 of the instant application that the cylindrical body is rotating around its center line and the centerline stays stationary. Further, the specification states that 'with their axes of rotation being perpendicular and spatially fixed' [pg 5, second paragraph]. Examiner has interpreted the axis of rotation to be the centerline. Therefore, the examiner cannot determine the proper metes and bounds of patent protection desired by the applicant.

Claim 9 is dependent on claim 8 and is similarly rejected.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

Art Unit: 1791

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-5 and 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #2,719,463 HAUG, hereinafter HAUG, in view of *Mechanical Factors in Beating* by MURPHY, hereinafter MURPHY.

As for claims 1, 2, and 10, HAUG discloses a method for refining pulp between two refining surfaces (14) and (10) (*A method of altering paper fiber or pulp fibers in a watery suspension, in which the pulp (F) is guided through at least one refining zone (3) which lies between refining surfaces (1, 2)* [Figure 3 and column 1 lines 15-25, 38-50]). HAUG discloses that the surfaces rotate in relation to each other and are pressed against each other under load which therefore effects the fiber properties (*in which the refining surfaces (1, 2) are moved relative to one another and are pressed toward one another, whereby mechanical refining work is transmitted to the fibers such that the strengths of the paper made therefrom change* [column 2 lines 60-65 and column 3 lines 58-62]).

HAUG does not disclose the operational parameters for refining the pulp of the disclosed apparatus and method of using said apparatus. MURPHY discloses the mechanical factors that effect pulp qualities during beating. MURPHY specifically discloses that at higher shear forces due to increasing speed the pulp strength properties are negatively affected [summary].

MURPHY discloses relative speeds all the way to 0 m/s which is 0% of the absolute relative

Art Unit: 1791

speed and which therefore falls within the instant claimed ranges [pg. 25 Figure 12 and pg. 19 column 1]. At the time of the invention it would have been obvious to a person of ordinary skill in the art to run the refiner of HAUG at the low relative speeds of MURPHY. A person of ordinary skill in the art would be motivated to do so since low relative speeds increase burst strength of the treated pulp for the same freeness value of the pulp treated at a higher relative speed [pg. 20 Figure 3]. Lower freeness is desirable since the pulp will drain faster during paper formation. Examiner further notes that the low absolute relative speed causes the shear forces to be low as shear forces are directly related to relative speed [pg. 24 column 2 paragraphs 1 and 2] *(the relative speed between the pulp (F) and the refining surfaces, considered in the main direction of movement of the refining surfaces, is at most 10% of the absolute speed of the refining surface driven the fastest at the position (5) at which two refining surfaces (1, 2) are closest in the refining zone (3), such that no shear forces, or at most very low shear forces, are transmitted to the fibers in the refining zone (3)).*

As for claim 3, HAUG discloses that the pulp rotates around inner periphery of the drum which the examiner has interpreted as a roll-off movement [column 3 lines 1-5 and Figure 3].

As for claim 4, HAUG discloses a crushing action which is a compressing action [column 3 lines 8-10].

As for claim 5, HAUG discloses a refining surface (14) which is provide with grooves which extend transverse to the refining surface [Figure 3 shows grooves, also see column 5 lines 10-11]. A frustum type roll is one with a pyramid type shape of groove.

As for claim 7, HAUG discloses a smooth drum surface without grooves [Figure 3].



As for claim 8, HAUG discloses two refining surfaces a first refiner surface (14) which is located outwardly on a cylindrical refining body whose surface rotates around a center line and which includes the refining surface (10) on the inner side of the drum [Figure 3 and column 2 lines 60-63].

As for claim 9, HAUG discloses two refining bodies (14) and (42) [Figure 3].

As for claims 11 and 12, HAUG does not disclose the consistency of the stock as it passes through the refiner. MURPHY discloses stock concentrations of both 5 and 10% which fall within the instant claimed ranges. At the time of the invention it would have been *prima facie* obvious to apply the common and well known teachings of what consistency to run the refiner at as disclosed by MURPHY. Further, consistency is a clear result effective variable which affects pulp strength characteristics such as burst and effects pulp freeness [pg. 19 last paragraph – pg. 20 and pg. 21 Figure 6]. At the time of the invention it would have been obvious through experimentation to optimize the consistency of the refiner [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

As for claim 13, HAUG does state that the speed of the rolls can be varied [column 2 lines 60-63]. However, HAUG does not disclose the absolute speed of the rolls. MURPHY discloses that the speed of the roll is driven at a speed 1,400 rpm [pg. 18 column 2 paragraph 3]. MURPHY further discloses that the roll is 20 cm in diameter [pg. 17 column 1 last paragraph]. Therefore the circumference is  $20\text{ cm} * 3.14$  or  $\sim 63\text{ cm}$ . Thus the speed of the roll is  $63\text{ cm} * 1400\text{ revs/min} = 90,720\text{ cm/min} = \sim 15\text{ m/s}$  which falls within the instant claimed range. At the time of the invention it would have been *prima facie* obvious to apply the common and well known teachings of how fast to run a refiner as disclosed by MURPHY. Further, refiner speed is

Art Unit: 1791

a clear result effective variable. At the time of the invention it would have been obvious through experimentation to optimize the absolute speed of the refiner as refiner speed can be adjusted to affect the relative speed [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

As for claim 14, HAUG does states that the force of the refiner rolls on the pulp can be varied by hydraulic units [column 3 lines 59-61]. However, HAUG does not disclose the actual line force of the rolls applied to the refining zone. MURPHY discloses that the load of the refiner can be adjusted between 1.8 kg/cm, 3.4 kg/cm, and 5.0 kg/cm. This is equivalent to a line force in N/mm of 1.76 N/mm, 3.3 N/mm, and 4.9 N/mm [conversion to applicant's preferred units as followed:  $[(1.8 \text{ kgf/cm}) * (9.8 \text{ N/ kgf}) * (1 \text{ cm /10 mm})]$ . At the time of the invention it would have been *prima facie* obvious to apply the common and well known teachings of refiner load as disclosed by MURPHY. Further, refiner load is a clear result effective variable that effects burst and freeness properties [pg. 21 Figure 7]. At the time of the invention it would have been obvious through experimentation, absent evidence of unexpected results, to optimize the load of the refiner [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

14. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #2,719,463 HAUG, hereinafter HAUG, in view of *Mechanical Factors in Beating* by MURPHY, hereinafter MURPHY, as applied to claims 1 and 5 above, and further in view of Handbook For Pulp and Paper Technologists by SMOOK, hereinafter SMOOK..

As for claim 6, HAUG does not disclose the width or depth of the grooves. MURPHY disclose that the bars are .5 cm wide but does not disclose the width of the gaps themselves.

Art Unit: 1791

MURPHY discloses that the profile (rounded vs. square) of the refiner surface did not have a large effect, but does not disclose the effect of the width or depth of the refiner surface [pg. 22 effect of bar edges]. Therefore, neither HAUG nor MURPHY explicitly disclose the importance of these parameters. However, there is some implicit teaching that there must be some minimum depth and some minimum depth as without these dimensions no grooves would in fact exist. Further SMOOK, discloses the depth of grooves and the area of grooves (which is dependent on the length) to be variables that effect refining [pg 199 table 13-2]. Therefore, at the time of the invention it would have been obvious through experimentation, absent evidence of unexpected results, to optimize the width and depth of the refiner cylinder grooves [see e.g. MPEP 2144.05 (II) (B) Optimization of ranges and result effective variables].

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Thursday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1791

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJC

/Eric Hug/  
Primary Examiner, Art Unit 1791